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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,925	07/28/2003	Lee M. Nicholson	YOR920030173US1	7501

7590 08/30/2005

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EXAMINER

VU, HUNG K

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 08/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,925

Applicant(s)

NICHOLSON ET AL.

Examiner

Hung Vu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5, 7-9, 13 and 15-31 is/are allowed.
- 6) ☒ Claim(s) 10-12 and 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The indicated allowability of claims 10 and 14 is withdrawn in view of the newly discovered reference(s) to Gnade et al. (PN 5,789,819). Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Gnade et al. (PN 5,789,819).

Gnade et al. discloses, as shown in Figures 4A-4C, an electrical interconnect structure (24) on a substrate (22), comprising:

a first low k or ultra low k dielectric layer (28);

a low k protective layer (36) disposed on the first low k dielectric layer;

a hardmask/stop layer (38);

wherein the low k protective layer has molecular level free volume or molecular level porosity.

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Regarding claim 11, Gnade et al. discloses the molecular level free volume has a size ranging from about 20 Å to about 250 Å (within the range of about 2 Å to about 50 Å).

Regarding claim 12, Gnade et al. discloses the molecular level porosity has a volume percent from at least 50% (within the range of about 5% to about 80%).

Regarding claim 14, Gnade et al. discloses, as shown in Figures 4A-4C, an electrical interconnect structure (24) on a substrate (22), comprising:

- a first low k or ultra low k dielectric layer (28);

- a low k protective layer (36) disposed on the first low k dielectric layer;

- a hardmask/stop layer (38);

- wherein the low k protective layer has fine and evenly dispersed pores.

Note that the terms “CMP”, “CVD” and “spin-on” are method recitations in a device claimed.

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

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Allowable Subject Matter

3. Claims 1-5, 7-9, 13 and 15-22 are allowed.

Response to Arguments

4. Applicant's arguments with respect to claims 10 and 14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

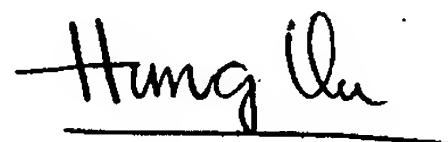
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Tuesday-Friday 6:00-4:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Steven Loke can be reached on (571) 272-1657. The Central Fax Number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Vu

August 26, 2005



Hung Vu

Primary Examiner